

CLAIMS

1. A multistage pump having a plurality of intermediate casings formed by press-forming a steel plate, characterized in that:

5 each of said intermediate casings has a cylindrical side portion, a stage flat portion with which an axial end face of an adjacent intermediate casing is held in contact, a stage side portion extending axially from said stage flat portion, and a bottom portion extending radially inward from said stage side portion,

10 wherein a relief plate having an outer circumferential end face which is held in contact with an inner surface of a cylindrical side portion of said adjacent intermediate casing is attached to said bottom portion of said intermediate casing,

15 wherein said relief plate, said stage side portion, said stage flat portion, and said inner surface of said cylindrical side portion of said adjacent intermediate casing form a space in which an O-ring is fitted.

2. A multistage pump having a plurality of intermediate casings formed by press-forming a steel plate, characterized in that:

20 each of said intermediate casings has a cylindrical side portion, a stage flat portion with which an axial end face of an adjacent intermediate casing is held in contact, a stage side portion extending axially from said stage flat portion, and a bottom portion extending radially inward from said stage side portion,

25 wherein a relief plate having an outer circumferential end face which is held in contact with an inner surface of a cylindrical side portion of said adjacent intermediate casing is attached to said bottom portion of said intermediate casing,

wherein said relief plate, said stage side portion, said stage flat portion, and said inner surface of said cylindrical side portion of said adjacent intermediate casing form a space in which an O-ring is fitted,

wherein a return vane interposed between a side plate and said relief
5 plate is formed integrally with said relief plate.

3. The multistage pump as recited in claim 2, characterized in that a height of said return vane at an outer circumferential side is larger than that at an inner circumferential side.

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4. The multistage pump as recited in any one of claims 1 through 3, characterized in that said relief plate is attached to said bottom portion at a position near its outermost portion so as to form a gap between a radially inner portion of said relief plate and said bottom portion of said intermediate
15 casing according to an amount of deformation of said bottom portion due to a differential pressure between stages.